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CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER
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U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

09/856157

INTERNATIONAL APPLICATION NO.

PCT/JP99/06800

INTERNATIONAL FILING DATE

03 December 1999

PRIORITY DATE CLAIMED

03 December 1998

TITLE OF INVENTION

SHEET COSMETICS

APPLICANT(S) FOR DO/EO/US

HORIZUMI Teruo et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
 - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☒ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☒ A copy of the International Search Report (PCT/ISA/210).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☐ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☐ Certificate of Mailing by Express Mail
23. ☒ Other items or information:

Notice for Consideration of Documents Cited in International Search Report
Notice of Priority/PCT/IB/304/Drawings (1 Sheet)/PCT/IB/308

| | | |
|--|--|---|
| U.S. APPLICATION NO. (IF KNOWN): SEE 37 CFR 1.53 09/856157 | INTERNATIONAL APPLICATION NO. PCT/JP99/06800 | ATTORNEY'S DOCKET NUMBER 208937US0PCT |
|--|--|---|

24. The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

| | | | | |
|--|---------------------|----------------------------------|-------------|----------------------------------|
| <input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO | \$1000.00 | CALCULATIONS PTO USE ONLY | | |
| <input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO | \$860.00 | | | |
| <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO | \$710.00 | | | |
| <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) | \$690.00 | | | |
| <input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) | \$100.00 | | | |
| ENTER APPROPRIATE BASIC FEE AMOUNT = | | \$860.00 | | |
| Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492 (e)). <input type="checkbox"/> 20 <input type="checkbox"/> 30 | | \$0.00 | | |
| CLAIMS | NUMBER FILED | NUMBER EXTRA | RATE | |
| Total claims | 7 - 20 = | 0 | x \$18.00 | \$0.00 |
| Independent claims | 1 - 3 = | 0 | x \$80.00 | \$0.00 |
| Multiple Dependent Claims (check if applicable) <input checked="" type="checkbox"/> | | | | \$270.00 |
| TOTAL OF ABOVE CALCULATIONS = | | | | \$1,130.00 |
| Applicant claims small entity status. (See 37 CFR 1.27). The fees indicated above are reduced by 1/2. | | | | \$0.00 |
| SUBTOTAL = | | | | \$1,130.00 |
| Processing fee of \$130.00 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492 (f)). <input type="checkbox"/> 20 <input type="checkbox"/> 30 + | | | | \$0.00 |
| TOTAL NATIONAL FEE = | | | | \$1,130.00 |
| Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). <input type="checkbox"/> | | | | \$0.00 |
| TOTAL FEES ENCLOSED = | | | | \$1,130.00 |
| | | | | Amount to be: refunded \$ |
| | | | | charged \$ |

- a. ☒ A check in the amount of **\$1,130.00** to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **15-0030**. A duplicate copy of this sheet is enclosed.
- d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:



22850

Surinder Sachar
Registration No. 34,423

SIGNATURE

Norman F. Oblon

NAME

24,618

REGISTRATION NUMBER

JUNE 1 2001

DATE

Description

Sheet Cosmetics

Technical Field

The present invention relates to a sheet cosmetic comprising an aqueous gel sheet in the absence of a supporting layer; exhibits highly adhesive to the skin; assumes transparent appearance; provides no sense of incongruity when applied to the skin; and achieves excellent moistening and cooling effects on the skin.

Background Art

Conventionally, there have been known sheet cosmetics applied to the skin formed of a supporting sheet which is coated or impregnated with a gel composition containing, for example, a humectant or a whitening agent. The supporting sheet used above has an adequate level of strength and a shape-maintaining property as sheet cosmetics. Thus, the sheet cosmetics, in which the active ingredient is impregnated, are employed in order to attain effects such as permeating active ingredients to the skin and improving smoothness of the skin.

Generally, such a supporting sheet is formed of woven fabric or non-woven fabric. When the supporting sheet is coated or impregnated with a gel composition, the sheet becomes thicker. Therefore, such sheet cosmetics provide

incongruent sensation during use. In addition, no such sheet of transparent appearance has been developed.

The gel composition applied or impregnated to the supporting sheet includes a natural polymer such as collagen, alginic acid or pullulan, or a synthetic polymer such as a cross-linked poly(acrylic acid) salt. Among these materials, a natural polymer material such as collagen or alginic acid, having high solubility in a cosmetic lotion or a similar product, exhibits insufficient shape-maintaining property as a cosmetic. In addition, because large amounts of sheet ingredients remain on the skin, such sheet cosmetics provide sticky sensation. To improve weakness of adhesion to the skin, an adhesive ingredient such as polyvinylpyrrolidone, poly(vinyl alcohol), or a poly(acrylic acid) salt is contained to the gel composition, or is formed into an adhesive surface layer (e.g., as disclosed in Japanese Kohyo Patent Publication No. 10-502359). However, such adhesive ingredients disadvantageously inhibit permeation of active ingredients and impart stickiness.

Disclosure of the Invention

In view of the foregoing, the inventors have carried out extensive studies on mechanical and optical characteristics of material for producing sheet cosmetics, and have found a sheet cosmetic that exhibits strong adhesion to the skin; assumes transparent appearance; and provides unfavorable sensation when applied to the skin.

Accordingly, the present invention provides a sheet cosmetic comprising a single-layered aqueous gel sheet having no supporting layer, wherein the aqueous gel sheet of 1mm in thickness has a light transmittance of 70% or more.

Brief Description of the Drawing

Fig. 1 shows a sample container for gel strength measurement of an agar sample and a cut surface.

Best Modes for Carrying out the Invention

The sheet cosmetic of the present invention comprises a single-layered aqueous gel sheet having no supporting layer. Conventional sheet cosmetics have a supporting layer formed of woven fabric or non-woven fabric, whereby the cosmetics are applied to the skin. In contrast, the sheet cosmetic of the present invention, having a single-layered aqueous gel which itself forms a sheet, has no such supporting layer.

In the sheet cosmetic of the present invention, the sheet of 1 mm in thickness has a light transmittance of 70% or more, preferably 80% or more, still preferably 85% or more. When the light transmittance is less than 70%, the sheet assumes no transparent appearance and provides considerable incongruent sensation when applied to the skin. The light transmittance at a wavelength of 550 nm can be measured, for example, by a UV spectrometer (UV-3100 PC, product of Shimadzu Corporation).

The sheet cosmetic of the present invention preferably

has an adhesion force 1-100 times, more preferably 1-90 times, particularly preferably 1-50 times, its own weight. When the adhesion force is less than 1 time its own weight, the sheet cosmetic applied cannot be maintained on the skin and is readily released from the skin. When the adhesion force is in excess of 100 times, the sheet cosmetic provides a considerable incongruent sensation on the skin and an unfavorable irritation to the skin when removed. The adhesion force can be evaluated by affixing the sheet cosmetic to polyethylene-made circular parallel plates (having a diameter of 8 mm) at a force of 10 g for 10 seconds and, subsequently, measuring the force required to remove at a constant speed (1 mm/sec).

The sheet cosmetic of the present invention preferably exhibits the aforementioned adhesion in the form of a single-layered aqueous gel sheet without having an adhesive layer nor an adhesive ingredient. The term "adhesive layer" herein refers to a layer containing an adhesive ingredient such as polyvinylpyrrolidone, poly(vinyl alcohol), or a poly(acrylic acid) salt. Since conventional sheet cosmetics, which have themselves weak adhesion of gel component *per se* cannot be fixed on the skin, the adhesion to apply the sheet cosmetics to the skin is enhanced by use of the aforementioned adhesive ingredient. However, the sheet cosmetic of the present invention can be formed of a material providing the aforementioned adhesion, even though such adhesive layer or adhesive ingredient is contained.

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The sheet cosmetic of the present invention preferably has a gel strength of 1000 g/cm² or less, particularly preferably 200-1000 g/cm², more preferably 200-800 g/cm², so as to mitigate incongruent sensation on the skin during use. The gel strength is measured in the following manner.

(1) Measuring apparatus

Rheometer: RE-3305 (product of Sanden)

Plunger: Cylindrical plunger (diameter of 5 mm)

Sample-stage lowering speed: 0.5 mm/sec

(2) Preparation of samples

A sheet cosmetic sample is placed on a sample stage.

(3) Measurement of gel strength

A cylindrical plunger is lowered at a constant speed (0.5 mm/sec). The force received by the plunger is measured. A force at which the gel breaks is employed as the gel strength.

Gel-forming materials as described above may be selected from a variety of materials such as agar, mannan, and gelatin, so long as they exhibit the aforementioned property. For example, there can be used an agar ingredient (A), which is obtained by subjecting raw seaweed having a sulfate group content of 1-10% to extraction in neutral hot water and exhibits a gel strength of 600 g/cm² or less at an agar content of 1.5 wt.%.

The agar ingredient (A) is obtained by subjecting raw seaweed having a sulfate group content of 1-10% to extraction. Examples of such raw seaweed include *Gracilaria verrucosa*,

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Gelidium amansii, and *Pterocladia capillacea*. Preferably, extraction is carried out in neutral hot water so as to obtain agar having a desirable physical property.

In view of sensation during use, the agar ingredient (A) of a 1.5 wt.% agar content preferably has a gel strength of 600 g/cm² or less, which is lower than that of typical agar, more preferably 10-600 g/cm², particularly preferably 10-400 g/cm². The gel strength is measured by use of apparatuses similar to the aforementioned apparatuses, in the following manner.

(1) Preparation of samples

1) An agar sample (3.0 g) is measured precisely and placed in a container (volume 0.5 L) whose tare has been measured in advance, and ion-exchange water (50 mL) is added to the container so that the agar absorbs sufficient amounts of water.

2) Warm ion-exchange water is further added, to thereby adjust the content to approximately 210 g, and the resulting mixture is dissolved by heating for 15 minutes in a hot bath.

3) The content is adjusted to 200.0 g and the mixture is poured into a glass container (inner diameter of 49 mm, depth of 57 mm) with a tape around thereon as shown in Fig. 1.

4) The sample is cooled at room temperature for one hour, capped, and allowed to stand at 20°C in a thermostat chamber for one night.

(2) Measurement of gel strength

After removing the tape, the portion of the gel

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protruding the upper edge of the container is cut by a cutter. The thus-formed surface of 1.5 wt.% aqueous gel is subjected to gel strength measurement by a rheometer.

The agar ingredient (A) of a 1.5 wt.% agar content preferably has a viscosity at 85°C of 15 mPa·s or more, particularly 15-200 mPa·s, in view of handling during production. In addition, the agar ingredient (A) preferably has an average molecular weight of 400,000-2,000,000. Furthermore, when a 1-mm-thick gel sample of the agar ingredient (A) of a 1.5 wt.% agar content is subjected to 20% deformation stress relaxation measurement, the time required for the initial stress to decrease to half the value is preferably 8 seconds (s) or longer, particularly preferably 8-15 seconds (s), in view of the shape-maintaining property. In other words, the shorter the stress relaxation time, the easier deformation occurs; i.e., the shape-maintaining property is poor. A stress relaxation time of 8 seconds or longer provides a favorable shape-maintaining property. The stress relaxation time is obtained by measuring a 20% compressively deformed sample by an apparatus (which is RSA2, product of Rheometrics) and circular parallel plates (having a diameter of 4.75 mm).

Gel-forming materials including the agar ingredient (A) are incorporated into the sheet cosmetic preferably in a total amount of 0.01-5 wt.%, particularly 0.1-3 wt.%, in view of strength and sensation during use. The balance is water and the following ingredients.

The sheet cosmetic of the present invention may further contain, as an additional ingredient, a water-soluble polymer (B) so as to improve strength and storage stability thereof. The water-soluble polymer to be used may be either natural or synthetic water-soluble polymer. Examples of the water-soluble polymer include polymers having a hydrophilic group such as a hydroxyl group, an ethylene oxide group, or an amido group, with polymers having a hydroxyl group being particularly preferred. Examples of such polymers include natural polymers such as polysaccharides and proteins, and synthetic polymers. Specific examples of the polysaccharides include cationized cellulose, carboxymethyl cellulose, hydroxyethyl cellulose, starch, ionized starch derivatives, block copolymers formed of starch and a synthetic polymer, hyaluronic acid, carrageenin, xanthan gum, chitin, chitosan, pullulan, tuberose polysaccharide, and alginic acid. Specific examples of the proteins include keratin, albumin, and collagen. Specific examples of the synthetic polymers include poly(vinyl alcohol)s and derivatives thereof, modified silicones, and latexes. Of these, polysaccharides are more preferred.

The water-soluble polymer (B) is incorporated into the sheet cosmetic preferably in an amount of 0.001-50 wt.%, particularly 0.01-10 wt.%.

The sheet cosmetic of the present invention may further contain a humectant (C). Examples of the humectant include ethanol, glycerin, ethylene glycol, propylene glycol,

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dipropylene glycol, 1,3-butylene glycol, 1,4-butylene glycol, polyglycerin such as diglycerin or triglycerin, glucose, maltose, maltitol, sucrose, fructose, threitol, erythritol, and starch sugar. Of these, ethanol, 1,3-butylene glycol, and glycerin are particularly preferred in view of sensation during use.

The sheet cosmetic contains the humectant (C) preferably in an amount of 0.001-40 wt.%, particularly preferably 0.01-30 wt.%.

Other than the aforementioned ingredients, the sheet cosmetic of the present invention may contain ingredients such as organic acids, oil, sterols, a surfactant, powder, silicones, inorganic salts, a preservative, a pH-regulator, a UV-absorber, a colorant, a pharmaceutically active ingredient, and a perfume.

The sheet cosmetic of the present invention is produced, for example, by dissolving a gel-forming material and other ingredients in warm water; pouring the resulting mixture into a mold; and cooling the mixture at a temperature not higher than the gelling temperature. Alternatively, the mixture is similarly molded into a sheet having a large area, followed by punching out sheet products of a desired shape.

The sheet cosmetic of the present invention preferably has a thickness of 0.1-5 mm, particularly preferably 0.5-2 mm, for attaining less incongruent sensation when applied to the skin.

No particular limitation is imposed on the shape of the

sheet, and the sheet can be formed into an arbitrary shape. Specifically, in order to attain an enhanced adhesion to the skin, the sheet may be formed into a shape corresponding to the body part to which the sheet cosmetic is to be applied. Alternatively, when the sheet cosmetic is to be applied to the entirety of the face, the cosmetic sheet may be provided with holes corresponding to the eyes, the nose, and the mouth. Moreover, the sheet cosmetic may be formed into a cloud-like shape or a broad bean shape so as to enable the cosmetic to be applied to the under-eye area.

The sheet cosmetic of the present invention provides a cooling effect during application to the skin, through evaporation of water. Specifically, an aqueous gel for producing the sheet cosmetic of the invention is formed into a sheet of 1-mm thickness. By applying the sheet to the skin, maintaining for 10 minutes, and peeling off the sheet from the skin, the temperature of the skin surface can be lowered by 3°C or more. The skin surface temperature is measured by means of a radiation surface thermometer (THI-500, product of TASCO).

The sheet cosmetic of the present invention can be used in a variety of modes. For example, the cosmetic is applied directly to the skin of the washed face or is applied to a portion of the skin where another cosmetic has already been applied. Alternatively, the sheet cosmetic of the present invention may first be coated with or impregnated with another cosmetic, then applied to the skin.

Example 1

Sheet cosmetic samples shown in Table 1 were prepared and evaluated in terms of skin adhesive sensation. The results are shown in Table 1. In Table 1, samples "a" and "b" were prepared by dissolving agar in a commercial cosmetic lotion in an amount of 1.5%, and the resulting mixture was molded into a 1.2-mm-thick sheet. The gel strength (1.5 wt.% agar content) of samples a and b were 415 g/cm² and 610 g/cm², respectively. Similarly, a mannan sheet (c), non-woven fabric (d), and a pullulan sheet (e) were impregnated with the same commercial cosmetic lotion.

(Evaluation methods)

(1) Skin adhesion sensation

For ten minutes following the application of a hydrogel to the face, skin adhesion sensation was evaluated by 10 specialized panelists on the basis of the following ratings:

O: at least 7 panelists answered "high skin adhesion sensation without incongruent sensation";

A: 4-6 panelists answered "high skin adhesion sensation without incongruent sensation"; and

X: 3 or fewer panelists answered "high skin adhesion sensation without incongruent sensation."

(2) Adhesion force

Adhesion force was measured by means of a tacking tester (TAC 2, product of RHESCA) under the aforementioned conditions.

(3) Gel strength

As mentioned above.

- (4) Stress relaxation time

As mentioned above.

- (5) Light transmittance

As mentioned above.

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Table 1

| Sheet material | a Agar 1 (invention) | b Agar 2 | c Mannan (invention) | d Non-woven fabric | e Pullulan |
|--|----------------------------|-------------|----------------------------|--------------------------|---------------|
| Sheet thickness (mm) | 1.2 | 1.2 | 1.2 | 1.5 | 1.5 |
| Light transmittance (%) | 95 | 88 | 96 | 40 | 90 |
| Adhesion force (times its own weight) | 4.2 | 3.6 | 5.6 | 0.9 | 1.1 |
| Skin adhesion sensation | 0 | A | 0 | X | X |
| Gel strength of sheet (g/cm ²) | 415 | 610 | 320 | — | — |
| Sol viscosity at 85°C (mPa·s) | 12.5 | 13.8 | 10.8 | — | — |
| Mol. weight | 1,500,000 | 2,200,000 | 2,000,000 | — | — |
| Stress relaxation half time (s) | 8.5 | 5.3 | 8.0 | — | — |
| Sheet shrinkage (%) | 4.8 | 3.8 | 3.0 | — | — |

As is clear from Table 1, the sheet cosmetics according to the present invention (sheets a and c) exhibit high light transmittance and provide excellent skin adhesive sensation. In contrast, the poly(acrylic acid) gel and gelatin gel have been found to exhibit shrinkage of 2.1% and 1.5%, respectively. Thus, the sheet cosmetics according to the present invention exhibit particularly excellent shrinkage.

Example 2

The water content and conditions of the skin to which the sheet cosmetic of the present invention had been applied were evaluated. Specifically, each of the sheet cosmetic of the present invention (the sheet a of Example 1) and a comparative sheet cosmetic (poly(acrylic acid) gel sheet cosmetic with a non-woven fabric support, thickness 2 mm) was applied and maintained in the skin for 15 minutes, and then peeled off from the skin. The above measurement was performed at 20°C under dry conditions of a relative humidity of 15%. The water content was measured by Skicon-200 (product of IBS), and the obtained value was expressed as a relative value with respect to a beauty lotion serving as a standard. The skin texture, an index of the skin conditions, was observed as magnified under a microscope, and the texture was visually evaluated by specialists. The conditions of the skin texture before and after application of the sheet cosmetic were compared; the ratings of O, Δ, and X were assigned for improvement of skin texture, slight improvement of skin texture, and no change, respectively. The results

are shown in Table 2.

Table 2

| | Agar 1 (invention) | Agar 2 | Poly(acrylic acid) + non- woven fabric |
|--|-----------------------|--------|--|
| Skin water content (relative value) | 1.0 | 0.9 | 0.8 |
| Skin conditions (texture) | 0 | 0 | Δ |

As is clear from Table 2, the effect water content and skin conditions has been improved when the sheet cosmetic of the present invention is used.

Example 3

The efficacy of permeation of a water-soluble component (amino acid), during use of the sheet cosmetic of the present invention, was evaluated. Specifically, an amino acid was incorporated into each of the sheet cosmetic of the present invention and a comparative sheet cosmetic (each of sheet cosmetics of Example 2), and the thus-prepared sheet cosmetic sample was applied to pig skin. After eighteen hours, the amount of the amino acid permeating to the pig skin was measured. The amount is represented by a relative value on condition that the amount of amino acid taken in the pig skin by use of the sheet cosmetic of the present invention is 1. The results are shown in Table 3.

Table 3

| | Agar 1 (invention) | Agar 2 | Poly(acrylic acid) + non- woven fabric |
|--|-----------------------|--------|--|
| Amount of permeating amino acid (relative value) | 1.0 | 0.9 | 0.4 |

As is clear from Table 3, use of the sheet cosmetic of the present invention has been proven to improve the effect of promoting permeation of amino acid.

Example 4

The effect of cooling the skin provided by use of the sheet cosmetic of the present invention was evaluated.

Specifically, each of the sheet cosmetic of the present invention and a comparative sheet cosmetic (each of sheet cosmetics of Example 2) was applied to the face; maintained for 10 minutes; and then removed from the face. Subsequently, the skin temperature was monitored, to thereby evaluate the cooling effect. For comparison, the effect provided in the case in which only a lotion was applied to the face was also evaluated. The skin temperature was measured by means of a radiation thermometer (THI-500, product of TASC0). The results are shown in Table 4.

Table 4

| Skin temperature (°C) | Agar 1 (invention) | Agar 2 | Poly(acrylic acid) + non-woven fabric | Solo lotion |
|-----------------------------------|--------------------|--------|---------------------------------------|-------------|
| Time | | | | |
| Before removal | 32.2 | 32.0 | 32.1 | 31.8 |
| Immediately after removal (0 min) | 28.1 | 28.8 | 30.3 | 30.9 |
| 3 min after | 29.1 | 29.6 | 30.9 | 31.5 |
| 5 min after | 29.6 | 30.8 | 31.3 | 31.8 |
| 10 min after | 30.8 | 31.2 | 32.3 | 32.1 |

As is clear from Table 4, use of the sheet cosmetic of the present invention has been proven to improve the cooling effect on the skin.

Industrial Applicability

The sheet cosmetic of the present invention, which cosmetic forms an aqueous gel sheet even in the absence of a supporting layer, exhibits strong adhesion to the skin; assumes transparent appearance; and provides no sense of incongruity when applied to the skin. In addition, the sheet cosmetic is suitably applied to the skin; exhibits a high

shape-maintaining property; and provides excellent temperature-maintaining and cooling effects on the skin. The sheet cosmetic can also modify tension of the skin through shrinkage by drying.

Claims

1. A sheet cosmetic comprising a single-layered aqueous gel sheet having no supporting layer, wherein the aqueous gel sheet of 1 mm in thickness has a light transmittance of 70% or more.

2. A sheet cosmetic according to claim 1, having an adhesion force 1-100 times its own weight.

3. A sheet cosmetic according to claim 1 or 2, having a gel strength of 1000 g/cm² or less.

4. A sheet cosmetic according to any one of claims 1 to 3, comprising an agar (A) which has a gel strength of 600 g/cm² or less at an agar content of 1.5 wt%, wherein said agar ingredient (A) is obtained by subjecting raw seaweed having a sulfate group content of 1-10% to extraction in neutral hot water.

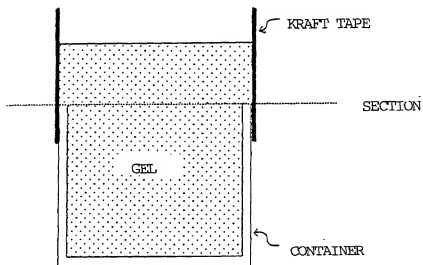
5. A sheet cosmetic according to claim 4, further comprising an additional water-soluble polymer (B).

6. A sheet cosmetic according to claim 4, further comprising a humectant (C).

Abstract

Sheet cosmetics including a single-layered aqueous gel sheet having no supporting layer wherein the sheet of 1 mm in thickness has a light transmittance of 70% or more. These sheet cosmetics have high adhesion force to the skin, transparent appearance presenting no sense of incongruity and achieve excellent moistening and cooling effects on the skin.

FIG. 1



Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

Japanese Language Declaration

日本語宣言書

下記の氏名の発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名称の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者（下記の名称が複数の場合）であると信じています。

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled.

シート化粧料

SHEET COSMETICS

上記発明の明細書は、

the specification of which

本書に添付されています。

☐ is attached hereto.

1999年12月3日に提出され、本国内発願または特許協定条

☒ was filed on December 3, 1999

約国際出願番号を 06800 とし、

as ~~United States Application Number~~

(該当する場合) _____ に訂正されました。

PCT International Application Number

PCT/JP99/06800 and was amended on

_____ (if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

Japanese Language Declaration
(日本語宣言書)

私は、米国法典第35編119条 (a) - (d) 項又は365条 (b) 項に基づき下記の、米国外の国の少なくとも一カ国を指定している特許協力条約365 (a) 項に基づく国際出願、又は外国での特許出願もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張している、本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示しています。

Prior Foreign Application(s)

外国での先行出願
10-344581

Japan

(Number)
(番号)

(Country)
(国名)

(Number)
(番号)

(Country)
(国名)

I hereby claim foreign priority under Title 35, United States Code, Section 119 (a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Claimed

優先権主張

| | |
|-------------------------------------|--------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Yes | No |
| はい | いいえ |
| <input type="checkbox"/> | <input type="checkbox"/> |
| Yes | No |
| はい | いいえ |

03/12/1998

(Day/Month/Year Filed)
(出願年月日)

(Day/Month/Year Filed)
(出願年月日)

私は、第35編米国法典119条 (e) 項に基づいて下記の米国特許出願規定に記載された権利をここに主張いたします。

(Application No.)
(出願番号)

(Filing Date)
(出願日)

(Application No.)
(出願番号)

(Filing Date)
(出願日)

私は、下記の米国法典第35編120条に基づいて下記の米国特許出願に記載された権利、又は米国を指定している特許協力条約365条 (c) に基づく権利をここに主張します。また、本出願の各請求範囲の内容が米国法典第35編112条第1項又は特許協力条約で規定された方法で先行する米国特許出願に開示されていない限り、その先行米国出願書提出日以降で本出願書の日本国内または特許協力条約国際提出日までの期間中に入手された、連邦規則法典第37編1条56項で定義された特許資格の有無に関する重要な情報について開示義務があることを認識しています。

(Application No.)
(出願番号)

(Filing Date)
(出願日)

(Status: Patented, Pending, Abandoned)
(現況：特許許可済、係属中、放棄済)

(Application No.)
(出願番号)

(Filing Date)
(出願日)

(Status: Patented, Pending, Abandoned)
(現況：特許許可済、係属中、放棄済)

私は、私自身の知識に基づいて本宣言書中で私が行なう表明が真実であり、かつ私の入手した情報と私の信じていることに基づく表明が全て真実であると信じていること、さらに故意になされた虚偽の表明及びそれと同等の行為は米国法典第18編第1001条に基づき、罰金または拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の声明を行えば、出願した、又は既に許可された特許の有効性が失われることを認識し、よってここに上記のごとく宣誓を致します。

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Japanese Language Declaration

(日本語宣言書)

委任状：私は下記の発明者として、本出願に関する一切の手続きを米特許商標局に対して遂行する弁理士または代理人として、下記の者を指名いたします。

(弁理士、または代理人の指名及び登録番号を明記のこと)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: (list name and registration number)



022850

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(第三以降の共同発明者についても同様に記載し、署名すること)

(Supply similar information and signature for third and subsequent joint inventors.)

Japanese Language Declaration

(日本語宣言書)

| | | | |
|---|----------------|---|---|
| 第三の共同発明者の氏名 | 山崎 誠司 | Full name of third joint inventor, if any | Seiji YAMASAKI |
| 第三の共同発明者の署名 | 日付 May 7, 2001 | Third joint Inventor's signature | Date |
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|-------------|----|--|------|
| 第四の共同発明者の氏名 | | Full name of fourth joint inventor, if any | |
| 第四の共同発明者の署名 | 日付 | Fourth joint Inventor's signature | Date |
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| 第五の共同発明者の氏名 | | Full name of fifth joint inventor, if any | |
| 第五の共同発明者の署名 | 日付 | Fifth joint Inventor's signature | Date |
| 住所 | | Residence | |
| 国籍 | | Citizenship | |
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|-------------|----|---|------|
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| 第六の共同発明者の署名 | 日付 | Sixth joint Inventor's signature | Date |
| 住所 | | Residence | |
| 国籍 | | Citizenship | |
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| | | | |

(第六またはそれ以降の共同発明者に対しても同様な情報および署名を提供すること。)

(Supply similar information and signature for third and subsequent joint inventors.)